

India's Solar Waste & Recycling Market

Prelims: Current events of national and international importance | Economy

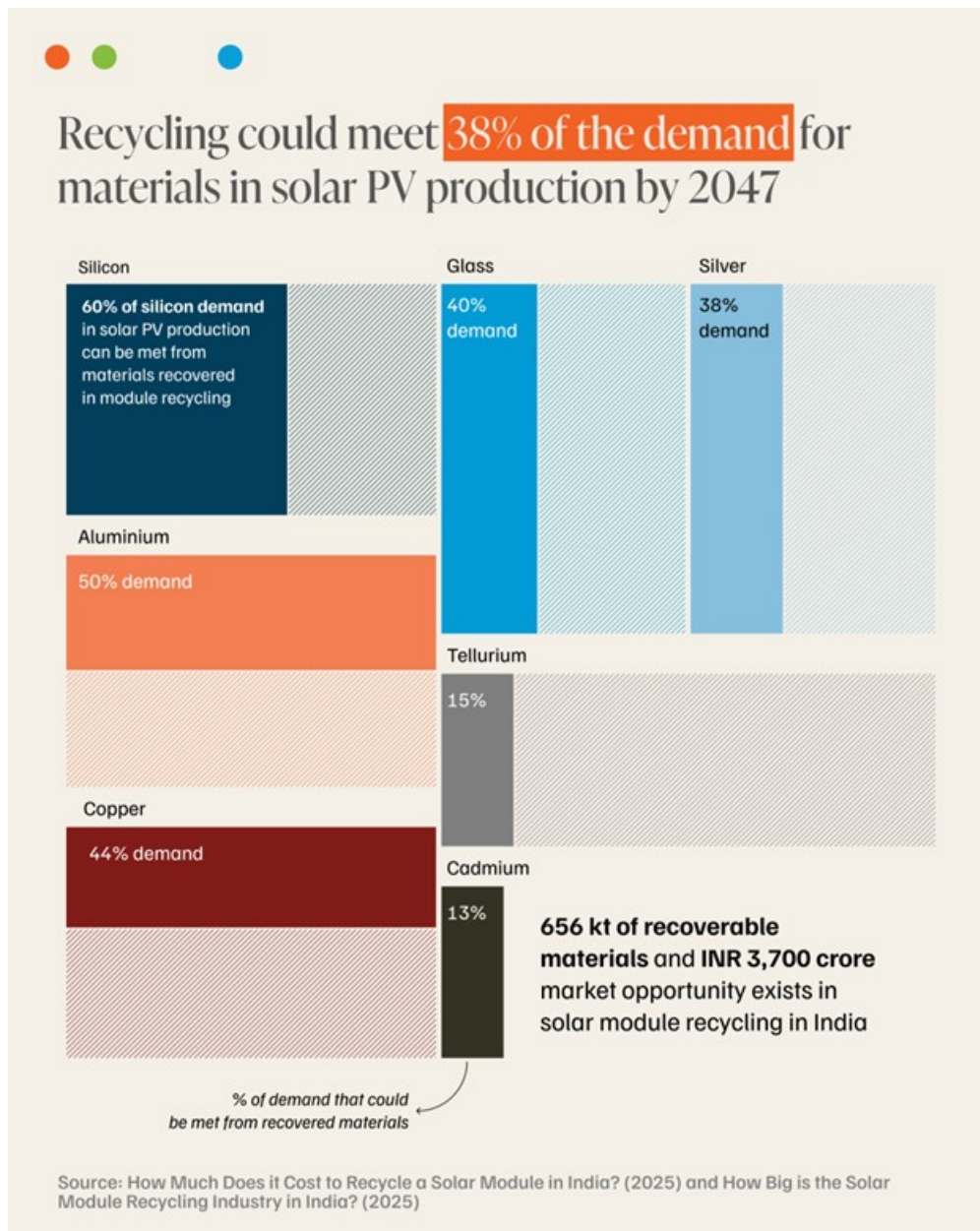
Why in news?

India is projected to generate about 11 million tonnes of solar waste by 2047, as per the study by a Delhi-based think tank Council on Energy, Environment and Water (CEEW).

- **CEEW study** - Provide India's **1st comprehensive blueprint** for building a domestic solar recycling ecosystem that supports both clean energy and manufacturing self-reliance.

Findings of the study

- **Projected Solar Waste** - About 11 million tonnes, mostly from crystalline-silicon solar modules by 2047.
- **Reason** - Rapid solar capacity expansion under India's renewable energy targets.
- **Infrastructure & Investment Needs** - Managing the waste would require nearly 300 recycling plants across the country with an estimated investment of around Rs. 4,200 crore.
- **Market Opportunity** - Recovering & reusing materials from discarded solar panels could create a **Rs. 3,700-crore market opportunity by 2047.**
- **Materials recovery potential** - Silicon, copper, aluminium, silver recovered from solar waste could meet **38% of the sector's manufacturing inputs** in 2047 & avoid 37 million tonnes of CO₂ emissions by replacing virgin materials.



- **Economic Opportunity** - By recycling solar waste, recover valuable minerals, boost supply chains, and create jobs and supports India's sustainable and strong development.
- **Main expenses** - Buying back waste modules - about Rs. 600 per panel (nearly 2/3rd of the total cost), followed by processing, collection and disposal costs.
- **Recommendations** - To make recycling profitable
 - Panels should be priced below Rs. 330,
 - Recyclers support through **EPR (Extended Producer Responsibility)** certificate trading for collection and recovery under the E-Waste (Management) Rules, 2022,
 - tax incentives
 - R&D for better recovery of silicon and silver.
 - Innovation - designing panels for easier material recovery &

improving material purity

- Creating new value chains around critical minerals
- Circular Solar Taskforce - to align policy, finance and industry action.
- Centralized Solar Inventory - to track where solar waste is building up.

References

1. [The Hindu | India's Solar waste projection](#)
2. [CEEW | India's solar boom create a Rs. 3,700 Crore market in 2047](#)

